C. C. Colman - from the Editor

THE ADVOCATE OF SCIENCE.

Vol. 1.] KNOWLEDGE IS POWER—HAPPINESS—VIRTUE. [Nos. 17 & 18.

Wm. P. Gibbons, S. W. cor. of 6th and Cherry sts. PHILADELPHIA, SEVENTH MONTH 18th, 1833. Semi-monthly.—One dollar for 50 Numbers

For the Advocate of Science.

GEOLOGY, No. 10.

Recapitulation.—*Diluvial* and *alluvial* classes defined, the former produced by floods, the latter by the slow action of rivers. The two classes will be examined connectedly. The power and extent of the causes which formed them, best appreciated by inspecting certain recent phenomena which have transpired within the range of human observation. Fall of Mount Grenier in Switzerland, (A. D. 1248) described. Destruction of Pleurs, in 1618. Action of frost, of glaciers and avalanches. Catastrophe in the White Mountains of New Hampshire, in 1826.

Action of rivers in transferring soil, and producing alluvial formations.—The action of rivers in transferring soils or sand from elevated to low situations, though more slow and gradual, is also of considerable moment. The quantity of earthy matter held in suspension by some rivers, after heavy rains, is prodigiously great. A glass of water taken from the Ganges at the height of its inundations, yields one-fourth sediment. Barrow, in his account of China, informs us, that the quantity of mud brought down by the Yellow river, was found, by calculation, to exceed two millions of solid feet per hour, and at some miles distant from the sea, the river was three-fourths of a mile broad, and was running at the rate of seven or eight miles an hour. The Gulf of Mexico, according to Humboldt, is gradually filling up by the depositions of the rivers which empty into it. From Calcutta to Lucknow, a distance of 650 miles, is one vast plain of sand and mud; and no substance so coarse as gravel is to be found here in the track of the Ganges, within 400 miles of the sea. The rapid deposit of mud at the mouths of rivers has given rise to some remarkable changes in the geographical situation of certain places. We are told that the Delta, at the mouth of the river Po, has gained nine miles upon the sea; and the sea, which formerly washed the walls of Adria, is now nearly twenty miles removed from it; the land making an average progress of advance upon the sea, seventy or eighty yards a year. The Roman harbor, Portus Valesia, formerly at the mouth of the Rhone, on lake Geneva, is now removed two miles inland.

Delta of the Nile.—The Delta of the Nile is an alluvial deposit of the same nature. About August, an island is first thrown up at its mouth, so as to divide the river into two branches. The eddy formed by this island throws back on the beach the sand that has been brought down by the river, and thus one of the branches is gradually blocked up, and the island forms part of the main land. A similar island is then formed in the middle of the remaining branch, and the same process repeated. A few sea weeds spring up, the decay of which enriches the soil, and the date tree then shows itself, and finally forests and palm trees. Even towns built a few centuries ago are seen at three miles distant from the shore, on spots that were once covered by the ocean.

Importance of alluvial agency to mankind.—Alluvial agency appears to have been the means employed in the economy of nature, to cover the barren rocks and the desert sands with fertile mould, and to prepare the earth for the residence of social and civilized man. The most ancient cities of which we have any authentic record, Babylon, Ninevah, and Thebes, were founded upon the alluvial deposits of the Euphrates, the Tigris and the Nile.

Change of place in the Falls of Niagara, and final drainage of Lake Erie.—It is estimated that the grand cataract of Niagara dashes with inconceivable force nearly 700,000 tons of water every minute, upon the rocks below, undermining and wearing down the adjacent strata. By this operation the cataract is sensibly approaching the upper lake, which it will finally drain and form an extensive valley, watered by a central stream, and containing a small lake in the midst. Where that great inland ocean now bears on its bosom the fleets of nations, forests of pines and of oaks will then flourish, and towns and cities will swarm with men who may ridicule the records of the nineteenth century, and regard the name of Erie as a fabled name, and its history as a fiction.

Operation of the waves of the sea in altering the earth's surface.—The incessant action of the waves of the ocean upon the shores of many countries, has no little effect, as one of the agents we are investigating. The coast of England is so much worn away in some places, that the town of Findhorn, originally some distance beyond the reach of the tides, is now washed by every tide, and repeatedly inundated by the waves of the ocean. The castle of St. Andrews, in Scotland, which was built several miles from the sea, now nearly overhangs it. Owing to the destruction of the beach at the mouth of the river Tay, the lighthouses there located have been moved from time to time, until they are now a mile and a quarter farther north; and the spot where the outer one originally stood is now two or three fathoms under water. The ancient city of Calicut, in India, which was the admiration of the Europeans who first visited that country, is now nearly four miles overflowed by water, and ships sometimes strike on the tops of its once lofty domes and steeples.

France and England supposed to have been once united.—The contiguous coasts of France and England being composed of a soft slaty rock, very easily worn away by water, renders very probable the supposition that England once formed a part of the European continent. Thus the island of Sicily is supposed by many to have once constituted a part of Italy. The island of Ramsay, off the British coast, exhibits the gradual encroachment of the sea, by which it will, in all probability, be one day separated in the middle into two islands.

Effects of sudden inundations.—With regard to the effects of sudden inundations of the ocean, we have melancholy evidence of their devastating power in the calamities that have from time to time visited the inhabitants of Holland, the eastern coast of Denmark, and the Danish islands. The only method of protecting these countries from the ravages of the common high tides, is the erection of dykes, as barriers against the invasion of the waters. Even these have sometimes been overcome, the country deluged, the verdant fields despoiled of their rich harvests, cities overwhelmed, and thousands and tens of thousands of the inhabitants buried in a watery grave. The two islands, Fora and Syls, once united, were separated by one of these sudden inundations.

Inundation of Providence, Rhode Island.—In our own country, we may find illustrations of the violence of sudden inundations. In the great tempest of 1815, among many similar occurrences which happened all along the coast of New England, a vast wave, raised by the hurricane, came suddenly in an overwhelming deluge upon the lower town of Providence, in Rhode Island, and in a few minutes prostrated entire rows of dwellings and warehouses. Ships of three or four hundred tons were thrown upon the wharves, knocking down large buildings by their momentum. The inhabitants in the second and third stories of houses were alarmed by the novel spectacle of the bowsprits of vessels driving through their windows and walls; and some of the largest ships were thrown up high and dry upon a beach where the salt water has never been since, and may never come again.

Prodigious force of certain tides.—As an example of the force of certain tides, I may cite those of the Amazon. On the three days of the highest tides every fortnight, the sea, instead of occupying six hours in rising, attains its highest elevation in one or two minutes. "It may be supposed," says a navigator who witnessed it, "that this is not effected very quietly. A terrific noise is heard at the distance of one or two leagues, which announces the approach of this tide, which is named by the Indians, *pororaca*. The noise increases, and presently one beholds a promontory of water, from twelve to fifteen feet in height, then a second and a third following close upon each other, and occupying the whole breadth of this magnificent

stream. The surge advances with prodigious rapidity, breaking down and shaving clean away every thing that opposes it."

Similar tides in the Bay of Fundy.—Every school boy has read in his geography of the tides in the Bay of Fundy, which rise sixty feet, and come rushing in like a flood, so that men and animals on the beach sometimes escape it with difficulty. Frequently the sea rises by a succession of large waves, the first and largest of which is termed by the inhabitants the *bore*. An eye witness of the occurrence states that a schooner of thirty-two tons, laden with live stock, was once riding with her side to the swell, at the influx of the bore, which was then about ten feet in perpendicular height. No sooner had this mass of water reached the vessel, than she was instantly turned over like a barrel, and presently disappeared. After the tide had ebbed, the schooner was found so deeply buried in the sand that the upper rail of the deck was alone visible.

Review of the subject.—We have now observed sufficiently the causes in operation at the present day in breaking down the face of mountains and continents, and modifying the surface of the earth. We have seen the gradual and steady effects of rivers in the formation of soils,—in the construction of vast and fruitful deltas, the natural Edens of our earth. We have marked the destructive agency of sudden inundations, the offspring of the angry tempest, by which islands are separated from continents, or buried with their inhabitants in the deep. We have looked upon the tide moving from the bosom of the calm ocean, unprovoked by the whirlwind or the storm, and dashing in upon the shore with resistless fury. And we have beheld the lofty mountain crumbling into dust, and immense volumes, whether of water, of solid rock, or of frozen snow, rushing impetuously down the precipitous steep, shaking the earth to its centre, and bearing death and destruction into the valley beneath. We shall now be better qualified to form some conception of that awful catastrophe which engulphed nearly all the inhabitants of the globe, at one fell swoop, the account of which is revealed to us by the pen of the historian, sacred and profane; by the tongue of tradition, and by the unerring, the infallible testimonials imprinted by its own operations on the mountains, the rocks, the soil, of every country under heaven. Thus does geology furnish ample evidence of the truth of the Mosaic narrative, by directing our attention to the great beds of gravel and rounded stones, beneath the surface of the soil—the torn and shattered condition of the mountains—the productions of the sea strewed in profusion on the very summits of lofty ridges—and the huge masses of rock which are discovered at a great distance from these mountains, to which, their composition and structure testify that they were once connected.

The subject of the universal Deluge not being completed, I will resume it in my next number. S.

For the Advocate of Science.

"FLINT'S LECTURES ON NATURAL HISTORY."

The name of Flint excites many pleasing associations in the mind of an American, from the several delightful books which his current pen has produced. When his recent work with the above title was announced, the writer of this article rejoiced in anticipation of the delicious treat which such an author, and such a subject promised to the admirer of nature. But I confess that I was not a little disappointed in my expectations; and as I have not seen any review, or criticism, of the work, it may not be amiss to make a few remarks on it, through the medium of the "Advocate of Science."

One of the first impressions received from a perusal of the book, is that of its *poetical* character. The style and language are not adapted to a treatise on the exact sciences, but rather to the effusions of the imagination. Indeed, the vivid fancy of our author shows itself in nearly every page, sometimes indulging in a vein of visionary speculation, which savors of romance. From this loose and desultory style, there arises a want of precision in the use of terms, tending to convey very erroneous ideas on some of the subjects that are touched on. But, as general observations of this nature, coming from an anonymous writer, are calculated to weigh but little in opposition to the name and authority of our eloquent author, I will adduce a few instances to prove the truth of my strictures.

On page 36, we are told that "the tartar on human teeth is said to be an aggregation of animalculæ." This is something quite new, to me at least. The *sordes*, or soft slimy matter on the teeth, is probably the substance which the author alluded to.

In describing Franklin's experiment on lightning, we are informed that the kite was raised by means of "wire." Every one knows that Franklin used a tow string for that purpose.

In treating of the motions of plants, the terms "sensibility" and "sensation," are employed in such a manner as to convey the idea that plants are capable of feeling pain and experiencing pleasurable sensations, like animals. Indeed, I am not able to conclude what are the author's real opinions on this subject.

Great numbers of plants, he says, *foresee* heat, winds, and rains. The term here used gives the idea of a consciousness belonging to the plant. Plants no more *foresee* rain than the barometer or hygrometer does; or than a pitcher does when filled with cold water so as to condense the vapor of the air on the outside. The motions of plants have reference only to the *present condition* of the air. A sensitive plant, by folding its leaves, shows a moist state of the air, or some peculiar state favorable to rain; but it no more foresees or foreknows the approaching rain than an inanimate stone. Much ambiguity and confusion have been thrown over this subject by a similar indefinite and careless application of terms.

In speaking of the motions of the parts of fructification of a flower, the writer says—"One analogy of the world of animal life is preserved." This is not the case; for the pointals *move* towards the stamens in quite as many flowers, perhaps, as the stamens do towards the pointals. I am surprised that he should attempt to revive the indelicate and now obsolete notions of the "loves of the plants." The science of botany has suffered seriously in reputation by the foolish imaginings of Darwin, who seems to be the model followed by our author, in descanting on the subject.

On page 95, we are told that the column of the barometer is supported by the atmosphere at a height of 28 inches. I will venture to assert that no person in the United States has ever seen this instrument so low as 28 inches. Its average height is a little below 30 inches.

On page 96 he tells us that the vapors being specifically lighter than the air, cause the air to become lighter when they are mixed with it. To me, this is perfectly unintelligible. The cause appears to be substituted for the effect; for the air must first become light before the vapor can be taken up in a large quantity.

On page 117, we read: "Electrical clouds are a prolific source of winds. We all feel the cool streams of air flowing towards the electrical machine in motion." I have often felt these "streams," but always supposed, as I believe most other people do, that the sensation was occasioned solely by the electrical fluid. No *motion of the air* is perceptible. The phenomenon in question is called the electric *aura*.—With regard to this reputed source of winds, I am very incredulous. The electrical excitement of a cloud depends on the same causes which produce the wind. So far from causing the wind, a thunder cloud cannot be formed unless the real causes of the wind are already in operation.

On page 127, in explaining the nature of flame, it is ascribed to the incandescence of the air immediately above the fuel. I have always supposed flame to consist of inflammable gases in combus-

tion. If the author's solution were correct, the hotter the fire, the greater would be the flame; the reverse of which more frequently takes place.

On page 123, he refers to the moss on trees, as a provision of nature to protect them from cold, and observes that in temperate climates, trees are only covered on the north side which is exposed to the most cutting winds. Now, the amount of all this is, that mosses are adapted to cold climates, and do not thrive well in a sunny exposure. Hence they cannot grow on the south side of trees. But, so far from acting like fur, affording the trees a protection against the cold, I believe mosses are generally considered injurious to trees, by obstructing the circulation in the bark and impeding its growth.

I may be considered impertinent in thus venturing to find fault with the production of one who has done honor to his country by the labors of his pen. However highly I estimate his other works, I cannot but think this last book to be the worst one he has ever written, and not at all creditable to him. Had it come from some person whose name was unknown to the world, it might have been tolerated, and even praised. But we were entitled to expect something better from a writer of his standing and celebrity.

It may be seen that I have done nothing but find fault, without giving credit for the good which the "Lectures" contain. All I have to say on this head is, that many parts of the work are highly interesting and useful. A large number of valuable facts is comprized in it. I would suggest that many little scraps might be selected to be served up to the readers of the "Advocate of Science," under the head of Miscellanies. SCRUTATOR.

For the Advocate of Science.

System or Classification.—No. 3.

We have already glanced at the orders of the three first classes, Mammalia, or suckling animals, Aves, or birds, Amphibia, or Reptiles and Serpnnts; next in rank is the class Piscus, or *Fishes*, the orders of which depend on the situation of the fins, or the structure of the gills. Thus the first order comprises eels and such others as have no inferior fins. The electric eel, resembling the Torpedo in its power of imparting a shock to whatever comes in contact with it, and the Sword fish, which is known to have penetrated with its sword the bottom of a large ship, belong to this order. The second order of fishes, has the ventral or belly fins anterior to those of the breast, the third has them beneath, and the fourth behind. The fishes of the fifth order have gills without any long substance, and are mostly deformed in appearance, sometimes looking as if the head and tail were lopped off. Those of the sixth and last order have cartilaginous gills.

Holding the fifth place on the scale of animal life, are the almost numberless insect tribes. The orders of this class depend on the structure or the number of the wings. The insects of the first and most numerous order, are known by having four wings, of a shelly hardness, as may be observed in the beetle family, or in the blistering fly. In this order is the little death-watch, whose measured strokes, designed for a call of love to his companion, have many a time aroused the superstitious dread of him who is but little lower than the angels.

In the second order, the two upper wings are also hard, but the other pair, soft and thin. Many of these are active only at night, as the musical cricket, the infesting roach, and the bug, whose vile habits render him an object of little interest even to the naturalist.

The third order comprises such insects as have scaly wings. Here belong the gaudy butterfly, and the various moths, one of which frequents our honeysuckles, on a summer evening, in company with the humming bird, which it resembles.

In the fourth order are those insects that have four thin, net-like wings. Of these, a familiar example is the snake servant, or dragon fly, who, in spite of all precedent, and contrary to all our ideas of convenience, carries his lungs in his tail.

The insects of the fifth order, have four membranaceous wings, and are mostly furnished with a sting. The bee and wasp are well known examples.

The sixth order contains such as have only two wings; as the common house fly and the gnat.

In the seventh, and last order, are placed those insects that have no wings, of which the most remarkable in its habits is the gregarious Termes, or white ant of the tropics. Their conical houses, large enough for the abodes of men, and presenting when numerous, the appearance of a village of the natives, are arranged internally with the utmost ingenuity, and different apartments being allotted to different purposes. This order also abounds with insects of bad character, among which are, the flea and the louse, whose customs and manners need no description.

There remains for examination the Linnæan class of Vermes, or worms, containing many animals not comprehended by the common acceptation of that term. The first order is named Intestinal, and includes all those which are naked, and not furnished with limbs of any kind. Many of them are parasitic; some living in the digestive canal of other animals—some in the liver, as the flukes in sheep—others beneath the skin, as the Guinea worm, which, though several feet in length, is not thicker than a horse hair. This most slender of animals in proportion to its length, insinuates itself under the skin of the Negroes, and in some cases proves fatal, from the inflammation it excites. The horse-hair worm, formerly supposed to be generated from hairs deposited in running water, and the medicinal leech, are in this order.

The second order comprises the Molluscous, or soft bodied worms, also naked, but always furnished with some kind of limbs. In this order is the worm that is so destructive to the timber of ships, requiring them to be sheathed. These animals attack in a solid phalanx, and each one boring its own path, they soon reduce the stoutest oak to a mere shell. The phosphorescent *medusa*, which illumines the sea in the tropics, is a molluscous worm.

The Testaceous worms form the third order, the study of which is embraced by the term *conchology*. They are placed in three grand divisions, accordingly as the shells have one, two, or more than two, valves or parts. The Univalves, or single shells, are mostly spiral, like the snail; the Bivalvis, or double shelled testacea, may be illustrated by the oyster genus, or by the enormous chama, or clamp, of the Indian ocean, the animal of which is large enough to supply with a meal more than a hundred men; and the multivalves, having three or more valves, may be represented by the pholas of Cape May, and by the anatifera of modern conchologists.

It is not my design to enter into a defence of the study of conchology. I will only remark that the objections urged against it, on account of its inutility, or its want of connexion with the common concerns of life, arise, in part, from the notion that it embraces merely the lifeless shell, and in part from the very convenient argument against any study, that the objector himself is ignorant of it. Were the field of human inquiry circumscribed by sordid interest, alas, for science!

The Zoophytes, or plant animals, some of which appear to form a connecting link between the animal and vegetable worlds, constitute the fourth order of worms. The polypus, sponge, coral, and madrepores, are in this division.

The fifth, and last order, contains the Infusory worms, found in stagnant water and vegetable infusions. They are so very minute, as seldom to be perceived without a magnifier. A good eye, however, may readily detect them in vinegar, swimming about like minute eels. ARANEA.

THE ADVOCATE OF SCIENCE.

Seventh Month 18th, 1833.

We have no better excuse than that of negligence for permitting so many errors to pass in our paper uncorrected; though it is a very difficult task to keep a periodical entirely free from them. After presenting to our readers another *errata*, containing the most prominent errors, we will promise *some* improvement hereafter in our typography. In the fourth paragraph of the first article, "present mass," is inserted instead of *parent mass*. In the seventh paragraph, Mount Grenier is stated to be 40,000 feet in height, instead of 4,000. Second paragraph of the article "System, or Classification," for "contest," read *contrast*. On page 54, left hand column, third paragraph, for "casuality," read *causality*.

A few numbers back we published an account of the flight and roosting place of the passenger pigeon, with Dr. Hildreth's name annexed to it as the author. That interesting history was extracted from Wilson's Ornithology, and it was an error on our part, while hastily glancing over the introductory paragraph written by Professor Silliman, Editor of the American Journal of Science and Arts, from whose work we copied it, in giving credit to Dr. Hildreth. This gentleman wrote an account of the pigeon 26 years previous to Wilson, and Professor Silliman remarks the latter will prove an excellent sequel to the former. We hope this explanation will absolve Dr. Hildreth from any charges of dishonesty to which our negligence may have given rise.

It has been hinted to us that the "Advocate of Science" should present to its readers Cuvier's System of Classification, as well as the system of of Linnæus, which our correspondent "Aranea" is now engaged in illustrating. We are of opinion that this should be done, and that "Aranea" will most probably attend to the subject. Should he not, however, we will engage to exhibit to our readers an abstract of Cuvier's method of arrangement, which appears to be making way in opposition to the older system.

Two of the queries sent us by "A Querist," and published in our last number, are answered in this. The third is under consideration.

As our title imports, so it is our duty to point out to the public what already exists and is worthy the attention of men of science, and what still remains to be accomplished, either for their use or the benefit of the rising generation. Every one is ready to admit the utility of a knowledge of astronomy, upon which science the whole art of navigation, the division of time, and the formation of accurate maps, are alone dependent; and yet, strange as it may appear, we have no cheap and simple ephemeris, or astronomical almanac, for the use of schools and students in astronomy. The nautical almanac is printed for sea use, but is too large, extensive and abstract for the purpose. The pages devoted to astronomy in the American almanac are most excellent, but like the former work, is calculated only for the observatory, or the adept in science. What is wanted, is something like the well known *Ephemeris, of White*, which is printed in London, and has stood the test of eighty-five years' circulation, and is to be found in every school, and in the hands of every student and admirer of science in Britain. It gives the means of performing every problem upon the globes and orreries, as well as for conducting observations of every kind to as high a degree of accuracy as the ordinary run of instruments will admit of.

We call upon our countrymen to produce and to encourage such a work, and if no one feels inclined to do it, a correspondent of our own pledges himself that it shall appear with the forthcoming year, provided a sufficient number of subscribers will send in their names by letter, *post paid*, to our office, or to J. Millington's Philosophical Instrument Manufactory, 187 South Third Street, Philadelphia. The sale of about 2000 copies, at 25 cents each, would about cover the first year's expense, and we feel assured that if once introduced, its utility to the rising generation would insure its continuance. Should a greater number of copies be subscribed for, the price might be diminished, and we trust the book trade, parents and teachers of seminaries, will not permit this notice to pass unheeded. We solicit an early attention to the above hint, from such as are inclined to encourage our project, so that we may have ample time to prosecute the concern.

PROTECTION FROM HOT WEATHER.

It is the prevalent custom to throw open the doors and windows of a dwelling in hot weather, in order to enjoy a free circulation of air—or to *bow* the shutters, leaving the window sash hoisted. This practice is not only inefficient, but unscientific. When the windows are raised, the temperature of the air in the room becomes very soon assimilated to that of the atmosphere. By keeping the sashes closed, a room is much cooler. The cool air of the morning should be admitted, so as to ventilate the apartments well, and then the window sashes carefully closed, the shutters bowed, or entirely closed, as well as the doors. In this way, the air of the room retains its cool freshness at noonday, when the air without is insufferably warm. A friend of ours, who tried this experiment, informs us that on one day when the mercury out of doors stood at 85°, he was able to enjoy, in his parlor, a temperature of 76°. Those who consult their comfort in the summer season would do well to practise upon these observations.

HYDROPHOBIA.

The Delaware Journal gives an account of the death of a young woman, from this disease. She resided in Kent county, near Dover, and died on the 28th of last month, at the age of 17. The following history of the case is taken from the Journal.

"The deceased complained, from the Monday previous to her death, of an aching throughout her system, accompanied with a vague feeling of anxiety and apprehension. She attended, nevertheless, to her work as usual, until Wednesday afternoon about three o'clock, when, upon going to the well for drink, the spasmodic sensation produced by the approach of water, gave the first symptoms characteristic of the malady by which she was attacked. From that period, her spasms gradually increased in frequency and violence, and were accompanied with severe pains in her head and the lower part of her breast.

"The family never suspected the nature of her disease until the morning of the day upon which she died: when, upon being asked by one of them if she had not been bitten by a dog, she replied, that she had not been *bitten*, but that she had allowed a little dog which had subsequently run off, and been killed as mad, to lick a small sore, produced by a scratch, upon her heel; medical aid was then resorted to for the first time.

"The deceased appeared to retain her senses perfectly throughout her illness, and evinced not the slightest disposition to injure any one in attendance. She lived twenty-eight days from the period when the *virus* is supposed to have been communicated—five days from the commencement of her indispo-

sition—and fifty-four hours after the convulsive sensations at sight of water, gave the first clue to the nature of her disease."

REPLY TO THE QUERY RESPECTING SHOOTING STARS.

The question our correspondent has asked in relation to shooting stars, is one which has occupied no small degree of attention from the learned, but as yet has resulted in little else than a history of the different appearance of these phenomena. They are to be seen at all times, and in all countries, and so far as observation has extended, are the prognosticators of no disastrous events, notwithstanding all our forefathers may have said and written to the contrary. We can give no original information on this subject; nearly all we have to say we gather from various sources. There appears to be no good reason why shooting stars and meteorites, or stones which fall to the earth should not be considered identical; the former it is true, are much smaller and appear more frequently than the latter, and but seldom come to the earth: but they are similar in other respects so far as we can judge.

In June 1799, Humboldt observed a prodigious number of falling stars between the island of Madeira and the coast of Africa. Thousands of falling stars succeeded each other during four hours. Bonpland relates that there was not a place in the heavens from the beginning of the phenomenon, equal in extent to three diameters of the moon which was not filled with them. Their direction was very regular from north to south. Some attained a height of 40°, and all exceeded 25° or 30°. There was very little wind and no trace of clouds to be seen. This same phenomenon was visible at the equator in S. America at Labrador and Greenland and in Germany. Thirty years before this event, there was seen at the city of Quito in one part of the sky, above the volcano of Gayamba so great a number of falling stars, that the mountain was thought to be in flames. This lasted for an hour.

Humboldt remarks they are more common and luminous in certain parts of the earth than others, and no where has he seen them more frequent than in the vicinity of the volcanoes of Quito, and in that part of the South sea which washes the shores of Guatimala. According to the observations of Benzenberg and Brandes, many falling stars noticed in Europe were only 63,950 yards, or a little more than 36 miles high; and the height of one which was measured did not exceed 17 miles.

We have hundreds of accounts or record of showers and large masses of stone falling in different parts of the globe. No person can possibly withhold his assent from the fact, though the problem has not yet been solved, as to the manner in which they are generated. In their fall they are sometimes accompanied by a hissing, but more generally by a noise resembling the report of cannon or thunder. They penetrate from 2 to 5 or 6 feet into the ground, and after falling are always hot, emitting an odor similar to the fumes of burning sulphur. Sometimes in falling they break into several pieces, each piece taking a different direction through the air. The light which some give forth is so brilliant that the finest print may be read by it.

Meteorites vary much in size. From small pebble stones which have frequently descended in showers, we read of gigantic masses, whose heavy and solid consistence are well calculated to astonish us. On the 5th of April 1800, "At night, a body wholly luminous was seen to move over a portion of America, with prodigious velocity. Its apparent size was that of a large house 70 feet long, and its elevation above the surface of the earth about 200 yards. It diffused a light little inferior to that of the sun; and those who saw it perceived a considerable degree of heat, but no electrical sensation. Immediately after it disappeared in the north west, with a violent rushing noise, which in a few seconds was followed by a tremendous crash, and a very sensible vibration of the earth. Search being afterward made in the place where the burning body fell, every vegetable was found burnt, or greatly scorched, and a considerable portion of the earth's surface broken up."—*Phil. Mag.*

Unfortunately this stone was not found. Gaspar de Villagra mentions a stone found in Mexico, in the latitude of 27° N. which he describes as something like the back of a tortoise in shape, and about 800 quintals in weight; (89,600 pounds troy,) he calls it massy iron; it was smooth, without the slightest rust, and "there was neither mine near it, nor vein of metal, nor any kind of stone any way resembling it."

The tradition of the natives concerning it gives strength to the supposition that it had fallen to the earth. A demon in the form of an old woman, appeared to two brothers, who were leading a horde or swarm of the ancient Mexicans in search of a new country; she told them to separate, and threw down this block of iron which she carried on her head, to be the boundary between them.

Humboldt's account of this reduces its dimension more than a half. "In the environs of Durango, is to be found insulated in the plain the enormous mass of malleable iron and nickel, which is of the identical composition of the aerolithos which fell in 1751, at Hraschina, near Agram in Hungary. Specimens were communicated to me by the learned director of the *Tribunal de Mineria de Mexico*, Don Fausto d'Elhuyar, which I deposited in different cabinets in Europe, and of which M. M. Vauquelin and Klaproth published an analysis. This mass of Durango is affirmed to weigh upwards of 1900 myriagrammes [a myr. is 22 lbs. 1 oz. 2 dr. avoirdupois; consequently its weight was about 41933 lbs.] which is 400 more than the aerolithos discovered at Otumpa by M. Rubin de Celis. M. Fredrick Sonnenschrnidt a distinguished mineralogist, who travelled over more of Mexico than myself, discovered also, in 1792, in the interior of the town of Zacatecas a mass of malleable iron of the weight of 97 myriagrammes, which in its exterior and physical character was found by him entirely analagous to the malleable iron described by the celebrated Pallas."

These two are among the most remarkable of more than a hundred accounts, which are before us. We will next examine the constituents of the stones; of an analysis of 22, all contained silica, 19 magnesia, 15 sulphur, 15 nickel, 1 regulus of nickel, 1 oxide of nickel, 9 lime, 12 iron, 11 oxide of iron, 1 brown oxide of iron, 1 sulphuretted iron, 1 regulus of iron, 8 manganese, 7 alumine, 5 chrome, and 2 carbon.

The average quantity of these elements which each stone would contain is 47.941 parts of silica, 164.263 of magnesia, 4.628 of sulphur, 2.163 of nickel, 21.060 of lime, 14.818 of iron, 15.5 of oxide of iron, 6.349 of manganese, 1.559 alumine and 0.378 of chrome; thus giving 278.667 parts to a stone: we do not include the other substances since they were only found in one or two stones. From this we may see the proportion in which the constituents enter in their composition.

We will now take a concise view of the different theories which have been advanced to account for the existence of meteorites.

The Parisian academicians, in the middle of the last century, maintained they resulted from a stroke of lightning on the spot in which they were found. But it so happens thunder and lightning are not their travelling companions, generally speaking.

Mr. Patrin conceived a regular circulation of gaseous fluids to exist between the schistose strata of the globe and its surrounding atmosphere, and from this fancied circulation deduced the occasional ignition and concretion of portions of these fluids in the higher regions of the air. But his theory rests on an assumed and improbable foundation. In support of a somewhat similar theory, M. Salveste brought forth a body of hydrogen gas, kindled by electricity during thunder storms. We have before said thunder and lightning do not accompany the fall of meteors. Many other theories have been advanced, which attribute their formation to atmospheric agency. But they are all conjectural.

It has also been supposed these concretions have been driven off from some of our volcanoes. M. Bory de Saint Vincent conceived that in an early state of the earth's existence "ignivomous mountains" were endowed with propelling forces adequate to the dispersion of matter into the regions of space, in which they were constrained for ages to obey the compound laws of impulse and gravitation, until, in the progress of time, their spiral revolutions terminated on the surface of their native planet. Trioli also endeavored to convince the world that they were torn from the earth by the powerful agency of subterraneous conflagrations. On such suppositions we should like to hear some good reasons why these said fragments did not export a few animals with them, such as toads, snakes, insects and the like, as well as some scraps of vegetation; and why we do not find them tumbling to the earth with, or separate from them: surely they could navigate the air as well as inanimate stones. However, the fact is, La Place has clearly demonstrated that no planet can exert within itself a propelling power, suf-

ficient to throw a body beyond the influence of its gravitation. And if this ever was done, it was through the influence of a power, which the planet itself did not possess. In other words, no volcanic, nor "*ignivomus mountain*" can throw out any body that will not immediately return to the earth's surface.

Some have supposed meteorites to be thrown from the volcanoes of the moon, into the sphere of the earth's attraction. For La Place, and a number of others, have shown that a heavy body propelled with a velocity of 6,000 feet in a second, would be driven beyond the sphere of the moon's attraction, into that of the earth's. What we have before said of projectiles will be sufficient to refute this idea.

Humboldt is decidedly of opinion that meteorites are foreign to the confines of our atmosphere. This appears to us to be the most tenable proposition, after considering the various other theories; and that they are ignited by the friction they experience in passing through the atmosphere. We know this to be possible, from the various combustible substances which enter into their composition; and it is certainly a much more rational conclusion, than that there exist large reservoirs of gases and the like, which are set on fire by electrical agency.

By way of concluding our remarks, which have been rather more extensive than was anticipated, we will give a short account of a meteor we observed on the evening of the 15th inst. at nine o'clock. We first saw it in the west, about 35° above the horizon, moving due east, with a regular motion. Its size was that of a star of the first magnitude, and round it was an elliptical halo of light, of a red color, the greatest diameter of which was about a foot or sixteen inches: its transverse diameter was not more than ten inches. On the lower edge of the light the meteor was located, and while we admired its easy and graceful motion through the air, we could not but regret such a beautiful exhibition should be lost sight of in the space of about two minutes, at the same elevation in the east, as near as we could judge, as it appeared at in the west. It did not appear to be more than five miles high.

For the Advocate of Science.

Will the Editor of the Advocate of Science, or some of his correspondents, oblige a subscriber by answering the following queries?

1. Why is a heavy clap of thunder in a thundergust often followed immediately by a sudden fall of rain?
2. Why do the thunder and lightning abate as soon as the rain begins to fall heavily?
3. Why are barns struck with lightning so much oftener than dwelling houses?
4. Why are trees so much shattered by a stroke of lightning, while houses and other objects often exhibit but a slight degree of the same effect?
5. Why is a lightning rod so frequently struck with lightning, in contradiction of the theory that a point draws away the fluid silently?
6. Why is a low chimney often struck by the side of a much higher one, which appears to be in every way more exposed?

BARRARA.

To the Editor of the Advocate of Science.

Your correspondent "Juvenis," desires me to inform him how smoke can be formed in the atmosphere from the elements which compose it. I asserted that the elements of smoke are exhaled from growing and decomposing vegetables in their gaseous form, and that it is within the range of probability that some cause unknown to us has the power of converting these elements into smoke, in the upper regions of the atmosphere. Juvenis seems to consider this *impossible*. Let us see.

Of what does smoke consist? I answer, its essential components are carbon, hydrogen, and oxygen. These exist in the different forms of pyroligneous acid, aqueous vapor and carbon, combined. Other substances, such as volatile oils &c. are merely incidental.

Do not the growth and decay of vegetables supply to the atmosphere these three elemental principles of smoke? Juvenis does not deny it; but he objects, that carbon is not thus exhaled in the form of carbon. I care not for this, while he allows it to exist in the form of carburetted hydrogen. Every compound certainly contains the elements which compose such compound.

Now, as Juvenis allows me a portion of *carburetted hydrogen* to work upon. I cannot see any difficulty in raising a smoke. This compound is the olefiant gas used for burning instead of oil. Unless it is burnt with a free supply of atmospheric air, *smoke* is always produced. What say you to this, friend Juvenis?

Thus therefore the substances which Juvenis tells us do exist in the air, are sufficient to give rise to smoke, by simple combustion. That the electric spark, or lightning, may elicit smoke from the same materials, I presume none will doubt. That the sun's rays, acting on the same materials in the elevated regions of the atmosphere, under some particular circumstances connected with the existence of aqueous vapor, and other gases, *may* produce smoke, or at least, that smoke-like substance which often loads our atmosphere, I presume Juvenis will not deny. After this explanation, I hope to be informed by your correspondent how to make meteoric stones out of the same materials.

Juvenis admits that if my tables be *correct*, his theory, referring hazy weather to the combustion of woods &c., must fall to the ground. Until he brings forward other tables to disprove the results adduced from mine, I think myself entitled to regard his theory as blown out of consideration. I would like him, however, to defend it further, if he can.

One word more to Juvenis—I think it likely he is a very clever fellow, except that he has had a little smoke in his eyes when he read my article. I did not say carbon was emitted from *growing* vegetables; neither did I say pyroligneous acid was another name for smoke, but that it was an essential ingredient. This acid, which is nothing more than impure acetic acid, or vinegar, imparts to smoke its pungent quality, as also its antiseptic property, on account of which it preserves meat.

BOREAS.

For the Advocate of Science.

A correspondent in the last number of the "Advocate," inquires why auroras are so often followed by easterly storms.

We are not sufficiently acquainted with the nature of the aurora borealis, and the causes which tend to produce it, to explain the relation between it and easterly winds. All we can say is in general terms, that an aurora being probably a current of electric fluid, passing from north to south, in the upper region of the atmosphere, it denotes a rarefaction of the air in some particular quarter; and that this rarefaction gives rise to those ærial currents, or winds, which eventuate in the storms alluded to. In all probability, the aurora indicates a cold, dense air towards the north; for we know that this condition of air is favorable to electrical phenomena. The natural consequence of this cause would be to establish a current flowing southerly, and this current again would tend to create another current in the opposite direction, forming the upper stratum of an easterly storm, which comes from a southerly quarter. Now, we know that a wind which blows from the north is diverted out of its original course, by the continually increasing velocity of those parts of the earth's surface, which it passes in its progress southward. Hence, a northerly wind constantly tends to become a northeasterly wind. In this way an aurora, by introducing a northerly wind, furnishes an indication of an easterly storm.

If a better solution of the question can be given by any of your correspondents, it would be particularly interesting to

ÆOLUS.

FISHING ON SKATES.

We copy from a newspaper the following curious account of a rare mode of catching fish, furnished in a letter from Kaskaskia, Illinois. We are a little at a loss whether to believe the whole of it or not; seeing that is is a—*fish story*. It bears, however, the semblance of truth, and the writer designed it to be credited. The "gig" is a sort of fork with three barbed prongs.

The citizens of Galena often amuse themselves in this way on Fever river, on which that town is situated. The water on that stream is very clear, and the ice there, (N. lat. 42 deg. 251) forms in one night, two or three inches thick, as pure as the crystal itself. Through it, the fish can be seen to the depth of eight feet or more, and at a distance of ten or fifteen feet. Those who are fond of the sport, prepare their skates, equipped with a *gig* and a tomahawk, and each man looks out for his game. Having discovered a pike, muskolounge, or sturgeon, he gives chase, and watching the motions of his game, he can, upon his skates, adopt his own movements to them; and in a pursuit of something less than three hundred yards, performing various evolutions, the fish becoming exhausted with fear, and his exertions to escape, stops. The sportsman, with his tomahawk blocks out about six inches square of the ice, and with his *gig* brings his prey to air, pierced by its prongs: What is remarkable, while the ice is cutting the fish shows no symptoms of alarm, nor do they attempt a further escape.

Thus are two of the most delightful amusements combined, skating and fishing. It is only however, for one or two days in a season, that this sport can be enjoyed, for after the first freezing the ice loses its transparency, so that the fish cannot be discovered through it, its surface no longer resembling that of the polished mirror.

The kind of fish taken in this way, are the common pike, weighing from half a pound to three pounds, the *muskolunge* of about the same size, both very delicious, and an inferior kind of sturgeon. A Mr. J. J. C. merchant of the place, was one of the skating party of four on Fever river, who ran down and captured in one day almost four hundred fine fish, of the description mentioned above.

While writing, I may as well tell you of another mode the inhabitants of that comparatively cold region have of taking fish. In warm sunshining days the fish rise up to the surface, probably to catch a look, or to feel the vivifying influences, of the splendid luminary through their brilliant covering. Their black fins, particularly those of the sunfish, freeze to the ice, and the fishermen cut out a piece of it, say five feet wide and ten feet long, and with a rope, slipped over one end, they upset the cake of ice, to which vast numbers of fish are found adhering by the back fins. Sleigh loads of them are taken after this fashion; and though inanimate, if put in tepid water they soon revive. This is a cheap and easy way of getting a supply of fish, but it wants the life and exhilaration of the other—running them down the skates.

Hunting wild cattle.—Nearly every body is familiar with the dexterous manner in which the inhabitants of the Pampas in South America catch wild cattle by means of the lassoo. Children are brought up to this exercise from the earliest stages of childhood. As soon as they can walk they are placed on horses and taught to ride; and throw the lassoo: And when not more than 12 or 14 years of age, then make prisoners of full grown cattle. Dampier, however, relates another method, practised by the Spaniards on Beef Island, in the bay of Campeachy. It is called *hocksing* or *houghing*. In the course of many years practice, the *hocksters* become dexterous in their art. They are mounted on good horses, who were early trained to the sport, and knew when to advance and retreat as well as their masters. The hunter was armed with a hocksing iron in the shape of a cresent, about seven inches in length and having a very sharp edge. This was fastened to a 14 feet pole, which the hunter laid over the horses head, with the instrument projecting forward. Riding up to his prey, with this he strikes, and seldom fails to hamstring it, when the horse instantly wheels to the left for the purpose of avoiding an attack from the wounded animal. If the stroke has failed to sever all the sinews, the animal soon breaks them himself by continually attempting to leap forward. While thus limping and somewhat exhausted the hunter rides up to him again, and at this time attacks him in front, sticking the iron into the knee of one of his fore legs.—The animal usually drops, when the hunter dismounts, and with a sharp pointed knife strikes into the head a little behind the horns, with so much certainty that with one stroke the head drops as if severed from the neck, and the poor beast is dead. The hunter re-mounts and pursues other game, while the skinners take off the hide.

JOURNAL OF THE WEATHER

for 6th Month, June, 1833, kept at Wilmington, Del.

	THER'M.			BAROMETER.			WIND.						
Days Month.	Sunrise.	Mid-day.	11 P. M.	Sunrise.	Mid-day.	11 P. M.	Morning.	Force.	Aft'noon.	Force.	Evening.	Force.	OBSERVATIONS.
1	60	76	64	29.9-	29.95	29.98	S	1	S	1	S W	0	Partly clear.
2	62	80	67	.90	.77	.76	SW	2	SW	4	W	2	cl.–cdy. T. gst. .40
3	66	77	55	.85	.86	.90	NW	3	NW	3	S N	2	Clear.
4	52	68	55	.98	.99	30.03	NE	2	SE	2	SE	1	Clear.
5	53	68	65	30.04	30.00	29.97	SSW	2	S	2	sSW	1	Partly clear.
6	64	67	62	9.95	29.94	.88	S	1	SE	1	E	1	Rain
7	60	68	60	.70	.65	.64	ENE	1	NE	1	NE	1	Rain.
8	58	68	61	.64	.64	.64	NE	0	SE	1	SE	0	Rain, 1.50
9	57	72	59	.55	.54	.54	NW	2	NW	1	NE	0	Clear.
10	52	72	61	.54	.49	.49	NW	2	NW	1	N	2	Clear.
11	54	68	62	.64	.6-	.72	NW	2	NW	1	W	0	Clear.
12	52	76	62	.81	.81	.80	NW	1	W		O	0	Clear.
13	60	82	76	.78	.70	.69	SSW	2	SSW	2	SSW	1	Partly clear.
14	71	80	66	.71	68	.65	NW	3	WNW	2	NW	0	Partly clear.
15	62	80	67	.66	.64	.60	W	1	SW	1	O	0	clr.; in ngt. * .20
16	64	77	65	.62	.62	.62	NW	3	NW	3	W	0	Clear.
17	60	77	64	.72	.71	.74	NW	3	NW	2	NE	1	Clear, Aurora.
18	59	78	64	.76	.95	.98	ENE	2	SE	2	SE	1	Partly clear.
19	60	66	64	.98	.95	.92	SE	2	SE	1	SSE	1	Partly clr. rain.
20	65	75	62	.92	86	.75	SSE	2	SSE	2	SE	1	Rain.
21	60	71	66	.75	78	.79	SE	1	NE	1	NE	1	Rain, 2.50.
22	64	83	76	.85	.85	.85	NW	1	W	1	S	0	Clear.
23	66	84	73	.83	.78	.80	SW	1	SSW	1	S	1	Partly clear.
24	71	70	61	.75	.65	.60	SE	3	SW	3	NW	2	Cld. r. .50-T a. L.
25	59	72	63	.55	.53	.53	W	3	NW	3	NW	1	Clear.
26	56	73	63	.50	.58	.65	E	2	NW	2	NW	0	.05 rain—clear
27	58	74	62	.78	.83	.89	NW	2	NW	1	O	0	Clear.
28	60	80	64	.95	.95	.97	MW	1	W	1	NW	1	Partly clear.
29	59	75	64	.99	.98	.97	NW	1	W	0	W	0	Clear.
30	59	78	69	.99	.99	.95	W	1	O	0	W	0	Clear.

Note.—In the column representing the "Force" of the wind, 0 denotes calm, or nearly so, 1 a light breeze, 2 a breeze, 3 a wind, 4 a high wind, and 5 a very high wind. The letters R, T and L denote rain, thunder and lightning respectively.

* A semicolon stands for light showers, and a colon for heavy showers.

SUMMARY.

Average at sunrise, thermometer		60°.16	barometer	29.79	inches,
Do. at mid-day,	do.	74°.50	do.	29.78	do.
Do. at 11 P. M.	do.	64°.73	do.	29.78	do.
Monthly mean, (2 obs.)	do.	67°.30	do.	29.785.	do.
Maximum, (23rd,)	do.	84°	do. 5th	30.043	do.
Minimum, (4th)	do.	51°	do. 10th	29.49	do.
Range,	do.	33°	do.	.55	do.
Warmest day, 14th,	do.	75°5			
Coldest day, 4th,	do.	49.°5			

Northerly Winds prevailed, (proportion,)	10 days	Proportion of cloudy weather,	11 days.
Easterly, do.	8 do.	Whole days clear,	13 do.
Southerly, do. (S. to W.)	12 do.	Days on which rain fell,	10 do.
Proportion of clear weather,	19 do.	Quantity of rain,	5.15 in.

Observations.—An Aurora Borealis on the 17th, followed by easterly winds, and in three days by a storm from S. S. E. clouds electrified on three days. One complete thunder gust. Easterly storms two in number, both accompanied with rain. Weather very changeable, fair for a day or two, and then a rain. Rains not very heavy at Wilmington, but in many parts of the United States so copious as to occasion unprecedented freshets in the streams, and considerable loss of property. The Delaware and Schuylkill and Susquehannah were particularly high. On the second, during the thunder storm noted in the Journal there were in several other places violent hurricancs. One swept along the valley of the Susquehannah in Chester county Pennsylvania, and another was experienced in Bucks county near Bristol. Orchards and woods were destroyed by them and several buildings prostrated. The winds in this quarter were generally light, and inclined to settle in the north and west. The main temperature was not far from the average standard for June, though perhaps a little cooler. Several warm days, but no hot weather. The highest temperature was 84°, which was no warmer than the remarkable last day of April.

MISCELLANIES.

1. *Voltaire an apostate from philosophy.*—Had this gifted man directed his thoughts more exclusively to the objects of science, his name would have been more frequently associated with that of Newton, or Linnæus. Although at first he pursued his philosophical studies with a laudable zeal and commensurate success, he soon changed his course, and that too under the influence of a sentiment which does but little honor to his character: "I have renounced the study of physics," he observed, "because in blowing my fire I began to reflect and to ask, why fuel made fire? no chemist, no philosopher could tell me."

2. *Number of Comets in the Solar System.*—A celebrated geometrician, Lambert, maintains that in our Solar system alone, there are at least five hundred millions of comets! He must probably regard every meteor as a comet, which terminates its course at the time it becomes visible, in the form of a shooting star.

3. *Great variety of colors.*—It is said the artists in Mosari, at Rome, employ stones of seventy five thousand different colors. Of course all these shades must be the result of various combinations of the seven prismatic colors, violet, indigo, blue, green, yellow, orange, and red.

4. *Number of motions performed by the heart and lungs.*—At every pulsation of the heart near half a pint of blood is driven with considerable force into the arteries throughout the entire body. This operation is essential to the continuance of life, and the suspension of it for a single stroke would cause a sudden and very perceptible shock to the system. And yet it is performed from eighty to one hundred and thirty thousand times every 24 hours. It is no marvel that any sensitive lady knowing this, should imagine that all important organ to be diseased, and tremble lest it should go wrong and deprive her instantaneously of life. The lungs also are in constant action, equally important. Every day they must contract and expand about 28,000 times.

5. *A London Fog.*—On the 22nd of December accidents occurred all over London from a very remarkable fog. Carriages ran against each other and persons were knocked down by them at the crossings. The whole gang of pickpockets seemed to be let loose. After perpetrating their deeds, they eluded detection by darting into the fog. It was of an opake, dingy yellow. Torches were used as guides to carriages at mid-day, but gave scarcely any light through the fog. I went out for a few minutes. It was dismal.—*Rush's Residence in London.*

6. *A palace of ice.*—Many of our readers have heard of a palace of ice built by the first Catharine of Russia. This was not done for amusement merely, but for punishment to a courtier. Menzikon, the queen's favorite, married adverse—to her wishes. In order to cool his refractory ardor, Catharine had the said ice-house constructed for his lodgings.

7. *Preservation of Oysters.*—Dr. Benjamin Smith Barton, observes that oysters can be preserved on heaps of coal, broken in small pieces, for a longer time than in any other situation, except those on which they are naturally found. By many of the oyster dealers in Scotland it is believed there can be no more effectual method of fattening these animals, than by placing them on beds of coal on which salt and water are occasionally sprinkled to keep the oysters moist. Beds of coal, or other similar matters, seem to be the favorite residence of oysters in some countries; this is remarkable in some parts Scotland. In the Firth of Forth, especially opposite to the coal works of Lord Abercorn and Sir Archibald Hope, where the strata of coal gradually descend to the sea coast, and there begin to make their appearance, oysters are dragged in the greatest quantities, and of a remarkably fine quality.

We would recommend the idea to our brethren of the sandy plantations in Maryland and elsewhere, of making an artificial stratum of coal over their land, and cultivating the said animals by the acre. Surely the storms which occasionally pick up newly planted wheat or corn fields, and deposit them in a distant section of the country, would not find the same facility in bearing their oysters away. If they did, it would be well to send an Edsonian supercargo along to sell them on their passage, so that the speculation would still hold good. Beside all this, the breed might be improved, by introducing a few from the coast of Coromandel, a single one of which is said to be large enough to supply 7 or 8 men with a full meal.

8. *Spartan Philosophy.*—Philip was in the practice of keeping vassals, whom he paid for procuring him partisans by bribes; one of these, entering a room where was Talecrus, a poor man, and Damindas, one who enjoyed an easy fortune, said to the former, what wealth have you? Every necessary, Talecrus replied, turning his back upon him. The latter he threatened with the anger of Philip. Coward, replied Damindas, what hurt can your master do to men who despise death?

9. *Azore Islands.*—These islands were so named on account of the great number of Goshawks, (Falco *astur?* in Portuguese *Azor*) found on them at the time of their discovery. The whole group is volcanic. The largest and most important is the island of St. Michael, which has a surface of 15,018 square miles, and a population of near 80,000.

There is a romantic valley called Furno or Furnas, of an oval form, and about a mile in circumference. One part is exceedingly beautiful; in addition to its being a favorite resort for birds, it yields fruits and aromatic plants, which contribute much to please and delight the senses. In another part are many boiling fountains; the most remarkable is the cauldron, a circular bason of about thirty feet in diameter, from which issues a large quantum of vapor. A short distance from it is the Boca de Inferno, which, with a noise like thunder, throws out quantities of water mixed with mud a considerable way from its mouth. Within the compass of an acre round this, are upwards of a hundred similar ones, some on the edge of a rivulet, and yet so hot as to be insupportable to the touch. In many places the surface of the ground is covered with pure sulphur, which has been crystallized from the stream, and like hoar frost, is arranged in sharp pointed stellated figures.

10. *Indian Superstition.*—Nuttall relates a ceremony which is practised by the Quapaw Indians, previous to planting their corn. A lean dog is selected by the squaws as a sacrifice to the Indian Ceres, and with terrific yells and distorted features is devoured alive. A chief assured him this barbarous ceremony was conducive to the success of the ensuing crop. These Indians are slaves to superstition, living in continual fear of the operations of supernatural agency.

11. *Aurora Borealis.*—It is said the southern Indians consider the Aurora Borealis as the assembled spirits of their departed friends, dancing in the clouds. The Northern Indians entertain a different creed, and call the phenomenon by the name of deer, in consequence of observing electrical sparks which bear some resemblance to these lights, issue from a deer skin when briskly stroked in the dark.

12. *Hunting the Hyena.*—The Gypsies of Aleppo have a curious way of hunting this ferocious animal. It is a solitary animal, inhabiting clefts and caverns in mountains, from whence it issues at night to seek its prey. According to Mr. Olivier, the gypsies enter these caverns in day time with torches in their hands, and on perceiving one, raise a great outcry, or boldly approach, that they may intimidate it. It is said the hyena is timid by day; and the effect of the light and clamor is such, that it retires farther and farther to the extremity of the cavern, where the gypsies quietly bind, muzzle, and lead it out. When the Arabs take it in a different manner, they carefully bury the head lest the brain should be employed against them in sorcery and enchantment.

AGENTS.

Adams, Mass.—*P. Briggs*, P. M.
Bristol, Pa.—*Anthony Swain.*
Frankford. Pa.—*John Griscom.*
Mount Holly, N. J.—*Samuel Bullock.*
Morrisville P. O. Pa.—*Hector C. Ivins.*
Pottsville, Pa.—*Elihu Pedrick.*
Baltimore, Md.—*Joseph Earnest, No.* 40 *S. Eutaw Street.*
Alexandria, D. C.—*Henry Stabler.*
Washington, D. C.—*William C. Ellison.*
Darby, Pa.—*John Sellers Jr.*

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